

MONOPRICE®

HDMI Switcher

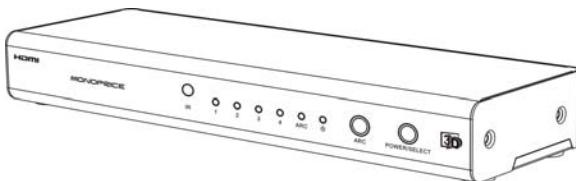
incorporates HDMI® technology

4 inputs 1 output

HDMI ARC/3D/CEC Support

plus Toslink and Coaxial audio output

Model: MD-415ARC



INTRODUCTION

Congratulations on your purchase of the HDMI® Switcher. Your satisfaction is very important to us. Our series of HDMI® Switchers are designed to make the use of your HDTV equipment more comfortable.

MD-415ARC Switcher can expand HDMI® input of your HDMI® display device up to 4 HDMI inputs. The Switcher offers single cable connection solution to TV; instead of connecting 4 HDMI cables to your HDTV. You will find this is a useful application when you try to hang a TV on a wall.

The ARC function provides more convenient A/V application. It enables a TV to send out audio data through a single HDMI cable to an amplifier; which can reduce the users' inconvenience instead of connecting an additional cable to amplifier.

The feature is designed to a SPDIF digital audio output (Coaxial & Optical) so users can easily share the digital audio of the 4 source devices by connecting one coaxial or optical audio cable to an audio system, which does not support HDMI connection. Moreover, the new added feature of supporting 3D video format also helps you enjoy the true 3D content more easily.

MD-415ARC can support HDMI ARC, 3D, and CEC functions; and compliant with your ARC, 3D, and CEC enable devices. You can enjoy the convenience of ARC, 3D, and CEC features without the interruption from switch box.

For the best performance of this switch box, please read this manual carefully and keep it for future reference.

FEATURES AND CONTENTS

Features:

- Audio Return Channel (ARC) function supported
- HDMI® 3D video format supported
- Expand 4 HDMI sources on your HDTV devices or home theater system
- Support 1080P/12-bit deep color HDTV; Support Pixel clock rate up to 225 MHz
- HDCP compliant
- Support digital S/PDIF audio output (coaxial & optical)
- DTS® HD, Dolby® TrueHD lossless compressed digital audio compliant
- Gold plated connectors
- Specified modes selection for audio format setting
- IR remote control
- Switch box ARC function enable/disable control

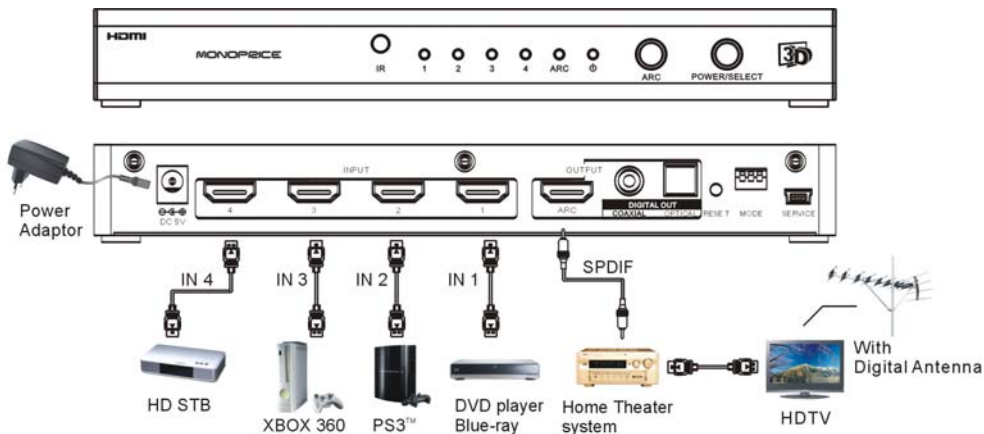
- HDMI CEC functions supported:
 - Routing change
 - Pass through CEC commands
 - One touch play
 - Stand by

Contents of Package

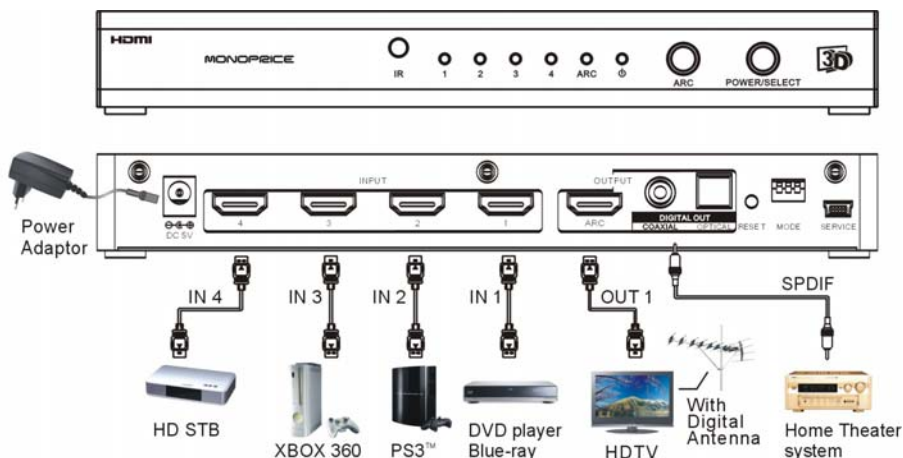
- DC 5V/2A power adaptor
- Remote control unit
- HDMI 4-IN-1-OUT switcher
- User's Manual

CONNECTION ILLUSTRATION

1. HDMI connection to an Amplifier



2. Toslink or Coaxial digital audio to Amplifier



※ If you want to watch 3D sources, please make sure the sink device supports the same HDMI 3D video format as your sources. The 3D image cannot be delivered to a TV which does not support 3D video format.

CONNECTION & OPERATION

Connection

Step 1: Connect the HDMI cables from the HD sources devices to the input ports of the Switcher.

Step 2: Connect the HDMI cable from your HDTV (or projector) to the output port of the Switcher.

Step 3: Connect the DC 5V/2A power adaptor to the HDMI Switcher.

Step 4: After you finish the connection, the power indication LED (red), ARC indication LED (blue), and port 1 input indication LED (green) will be lighted on.

Step 5: Initiate the CEC communication:

- (1) Turn on the connected TV, Switch box, and all connected source devices.
- (2) Select the source devices one by one, and make sure all source devices are working correctly. (Audio and video correctly show on TV with no interruption or noise.)
- (3) Follow the operational instruction below, and try all the operation function include CEC control function (Routing Change, One Touch play, Standby.)
- (4) If any function can not work, please restart the switcher and perform Step 5 again.

Note:

1. Initiate the CEC communication can make sure the switcher collect the correct EDID information from source device and display device. Incorrect EDID information may cause failure of CEC function. *(Due to varied design of CEC device, some CEC devices will automatically initiate the CEC communication with the switcher.)*
2. The following conditions are recommended to initiate or re-initiate the CEC communication:
 - When you first use the HDMI Switcher with your CEC enabled device.
 - When you disconnect or change the cable connection routing of the connected HDMI source devices.
 - When you connect the output of switch box to another TV set.Please check Step 5 in the connection instruction.
3. The CEC is working under standby mode for all connected CEC supported devices only. Please make sure the power of all CEC supported devices are plugged in and under standby mode.
4. The CEC feature only works with CEC supported devices.
5. Consumer Electronics Control (CEC) is also known as in following terms by their respective Brand Name. Philips (*EasyLink*), Sony (*BRAVIA Theatre Sync*), Samsung (*Anynet+*), LG (*Simplink*), Sharp (*Aquos Link*), Panasonic (*HDAVI Control, EZ-Sync, and VIERA Link*), Pioneer (*Kuro Link*), Toshiba (*CE-Link and Regza Link*), Onkyo (*RIHD, Remote Interactive over HDMI*), Mitsubishi (*NetCommand*). Each brand may have its extend CEC features.
6. Under standby mode, the HDMI switcher will memorize the latest input port. At your next use, the HDMI switcher will detect and connect the latest input port first.
7. To reset the switcher, please unplug the power adaptor, or unplug the power cord from DC jack for a short while; and then plug it back.
8. HDMI 3D video format:

Frame packing	Side-by-Side (Half)	Top-and-Bottom
1920x1080p@23.98/24Hz	1920x1080i@59.94/60Hz	1920x1080p@23.98/24Hz
1280x720p@59.94/60Hz	1920x1080i@50Hz	1280x720p@59.94/60Hz
1280x720p@50Hz		1280x720p@50Hz

ARC Operation

- The ARC function provides more convenient A/V application. It enables a TV to send audio data through a single HDMI cable to an amplifier; which can reduce users' inconvenience of that connecting additional cable to amplifier.
- ARC operation and function verification:
 - Step 1: Locate the HDMI-ARC port from the TV. (The HDMI port will be marked with ARC)
 - Step 2: Connect all source devices, amplifier, and TV to the MD-415ARC. (see "CONNECTION ILLUSTRATION" above).
 - Note: It is recommended to use a High Speed HDMI® Cables with Ethernet for TV to Switcher connection for better audio return channel (ARC) application.
 - Step 3: Turn on TV, amplifier, switcher, and source devices.
 - Step 4: When watch TV from built-in tuner (OTA, CATV, or satellite), Media Player or IPTV, the ARC indication light (blue) in the front of the switcher will be on. And the sound will be delivered by both TV speaker and stereo system. (It is recommended to turn off the TV volume to avoid double sound.)
 - Step 5: When select one of the source devices (ex. BD Player) from MD-415ARC, the ARC function and the indication light (blue) will be off automatically.
 - Step 6: Switch from sources device to TV broadcasting mode again (satellite, CATV, OTA...etc.), in order to make sure the ARC function is active. ARC is applicable under TV broadcasting mode only.
- Enable and disable the ARC function of the switcher:
 - 1. Use the "ARC" button on the remote controller to enable or disable the ARC function.
 - 2. Use the "ARC" button on the switcher to enable or disable the ARC function
 - 3. The ARC indication light is located at front panel of the switcher. When ARC function is on, the light will show "blue" light; in the contrary, when ARC function is off, the light will be off.
- When ARC function is on, please turn off the audio volume of TV, in order to avoid repeat sound from TV and amplifier. (When you press "Mute" for the TV, some TVs will show an icon on the screen; to avoid this situation, we recommend turning down the volume to "0")
- When switching input source to TV channel, the ARC function will automatic turn on. In the contrary, when switching from TV channel to input source, the switcher will automatic turn off the ARC function.
- When use the TV build-in media player to play videos, the ARC will be functional as well. When the ARC function is on, the audio signal will automatically send back to the amplifier. For example, if the original video is Dolby Digital format, and your TV can support Dolby Digital format; with the ARC function, you can enjoy the Dolby Digital sound effect from your amplifier.
- Please connect switcher to HDMI ARC port on the TV, so that ARC function can perform functionally.

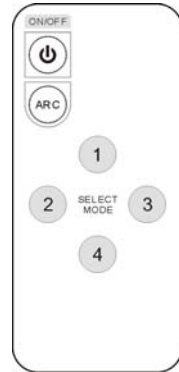
ARC function will perform as follow:

ARC Status (MD-415ARC)	ARC Port (TV HDMI Input)	Non-ARC Port (TV HDMI Input)
ARC On	The Audio signal will be sent from TV via the HDMI cable to the audio receiver which is connected to MD-415ARC with a coaxial or optical audio cable.	ARC function not supported
ARC Off	ARC function disabled. The Audio signal will not be sent from the TV.	ARC function not supported

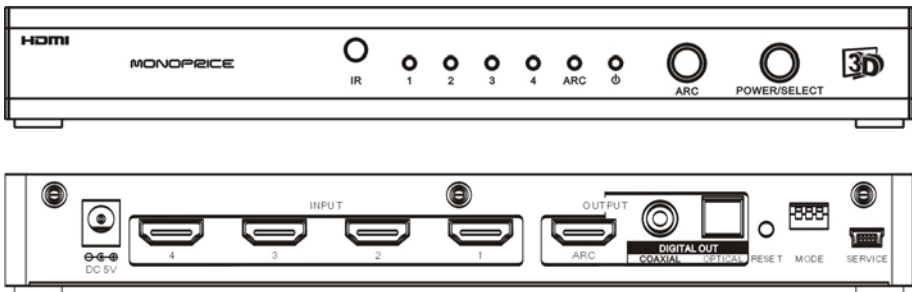
** Users may also enable and disable the ARC function from their ARC devices (TV, DVD player, Blue-ray player). Please check user's manuals of the ARC devices.*

IR Remote Operation

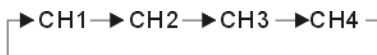
- Use the power key on the IR remote to power on the HDMI switcher. The power indication LED on the front panel will be lighted on.
- Press the power key one more time to turn the switcher to standby.
- Use number buttons to select the input sources.
- Use the “ARC” button on the remote controller to enable or disable the ARC function of the switcher.



Main Unit Operation

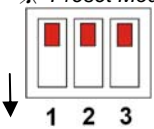
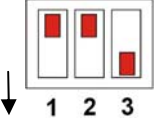
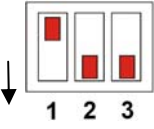


- **Power/Select Key:**
 - The “Select/Power” key is a multi-function key.
 - **Power Control:** Press the “Select/Power” key for 2 seconds to turn off the power (Standby); press the “Select/Power” key once to turn on the switcher.
 - **Source Selection:** If you want to change the input channel manually, you can press the “Select/Power” key once. A LED will be lighted up for the channel indication.
- **ARC Mode Key:**
 - Press the “ARC Mode” key to switch on/off the ARC function.
- **Reset Button:**
 - RESET button is located at back side of the switcher.
 - Press RESET button to reset the HDMI Switcher to the initial status.
- **The procedure is a cyclic function:**
 - When you selected the channel, there will be a LED on to present the channel. If you select channel 1, the CH1 LED will light on.



Specified Mode Operation

- If source devices do not support the function of Auto Detection & Auto Adjustment, please set the output audio signal of the source device first, and make sure the setting can be supported by the sink devices. For example, if user set the source to send out a DTS 5.1CH (or Dolby 5.1CH) signal, but the sink device can only support up to 2 CH, you will not have sound output from the sink device.
- If source devices support the function of Auto Detection & Auto Adjustment, the source device will auto adjust the output audio signal to the optimal standard based on the following different modes. Users can also set the audio output signal by themselves. Please make sure the setting can be supported by the sink devices.

MD-415ARC Switcher		
Mode	Mode Action	Recommended Application
Mode 1 Remain TV's Audio Signals <i>※ Preset Mode</i> 	<ul style="list-style-type: none"> ■ In this Mode, output audio signal of the switcher will remain the original audio format from TV. For example, if TV's audio format is 2 CH, the output audio format will be 2 CH as well. 	TV built-in tuner application; When using TV built-in tuner and HD antenna to watch HD TV program, both Video and Audio format may be delivered as high definition (for example:1080p and Dolby Digital) Under this mode, as long as the audio format from HD program are supported by current amplifier, users will hear the best sound quality from HD program.
Mode 2 Audio Specified (Dolby Digital 5.1, DTS 5.1, AAC, and PCM 2.1 CH.) 	<ul style="list-style-type: none"> ■ Set the output audio signal as one of the following 4 standards: Dolby Digital 5.1, DTS 5.1, AAC, or PCM 2.1 CH. For example, if the connected source device supports AAC audio format output, the output audio format of the MD-415ARC will be AAC as well. <p>Notices: Please make sure the audio output setting can be supported by the audio receiver.</p>	Home Theater or sound bar application; Traditional audio amplifier may only support Toslink or coaxial for audio input connection, please use the Toslink or Coaxial connector for audio output connection. Under this mode, the better sound quality of amplifier can be designated as the output audio standard.
Mode 3 Audio Specified (PCM 2.1 CH. and PCM 5.1 CH) 	<ul style="list-style-type: none"> ■ Set the output audio signal as one of the following 2 standards: PCM 2.1 CH. or PCM 5.1 CH. For example, if the connected source device supports PCM 5.1 CH audio format output, the output audio format of the MD-415ARC will be PCM 5.1 CH as well. <p>Notices: Please make sure the audio output setting can be supported by the audio receiver.</p>	Home Theater or sound bar application; Traditional audio amplifier may only support Toslink or coaxial for audio input connection, please use the Toslink or Coaxial connector for audio output connection. Under this mode, the better sound quality of amplifier can be designated as the output audio standard.

TROUBLE SHOOTING

1. When there is no picture presented, please:
 - Make sure the direct connection from the source device to the display device without the HDMI Switcher is working.
 - Check if all connectors are connected well; and check if all cables can support the transmission speed. High Speed HDMI cables are recommended.
 - Check the power of HDMI Switcher (or reset the switcher)
2. When there is only picture displayed and without sound:
 - Check the cable connection to see if it fits properly.
 - Check your cable to see if it supports video transmission only (DVI) or it is damaged.
 - HDCP may not match very well at first connection; please reset your HDMI switcher.
 - Do you connect any output to your video recorder? HDCP will lock up audio part.
3. When resolution could not show in 1080p.
 - Make sure your sources and displays are fully supporting 1080p.
 - Make sure your HDMI cables are capable of transmit 1080P video signal.
4. When Audio Return Channel(ARC) function is not working properly:
 - Please check if your devices have ARC-enabled HDMI ports. The letters "ARC" may be easily found on the HDMI ports of the ARC-workable devices. If not, please check with your manufacturer to determine which HDMI port will support ARC function.
 - Please make sure the blue ARC LED light is on. If not, you can use the remote control to turn on the ARC function or unplug the power cord to restart the switcher.
 - Please set the audio output format of source device to "bitstream," in order to perform Dolby Digital, DTS ...etc. audio format functionally.
 - Use High Speed HDMI® Cables with Ethernet for TV to Switcher connection.
 - If your devices support DTS® HD, Dolby® TrueHD digital audio format, please use HDMI connection with HDMI-enabled amplifier to play these digital audio formats functionally.
5. When CEC function is not working properly.
 - The HDMI CEC supported device which is connected to the HDMI CEC system is limited by the device type and the limited number of address. The device types and the quantity of each device type can be supported by a HDMI CEC System are TV (1), Recording Device (1~3), Tuner (1~4), Playback Device (1~3), and Audio System (1).

The number of each type of devices which are connected to a CEC System can not exceed the limitation of each device type to avoid incorrect CEC behavior. **For example, do not connect more than 3 Playback Devices (DVD player, BD player, Game player) to a CEC System.**

(This limitation is for CEC supported devices only.)
 - Please check if the connected source and display devices support HDMI CEC function.
 - Please make sure the CEC function of connected source and display devices is enabled.
 - Re-initiate the CEC communication by following Step 5 of the connection instruction on page 3.
 - If the cable connection was changed, please re-initiate the CEC communication. Please follow Step 5 of the connection instruction on page 3.
 - Please make sure the CEC function can work correctly when the source device is connected directly to the display device (TV).
 - If you operate the CEC function when the DVD (or Blue-ray) player playing mandatory non-skip part video (ex. Copy right warning), it may cause the CEC not working properly. Please turn off the player and restart the player.
 - The CEC functions may not totally work under different brand device. Because each brand may have their own special control features. It is suggested to choose same brand devices, in order to support full CEC features of each brand's CEC control.
6. When 3D content could not be shown on your display.
 - Please make sure your sources and display are 3D supported devices and also support the same 3D format.
 - Please check if the Blue-ray player has been set 3D or AUTO play-mode for video output.
 - Please make sure the video content is 3D content.

NOTICE

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